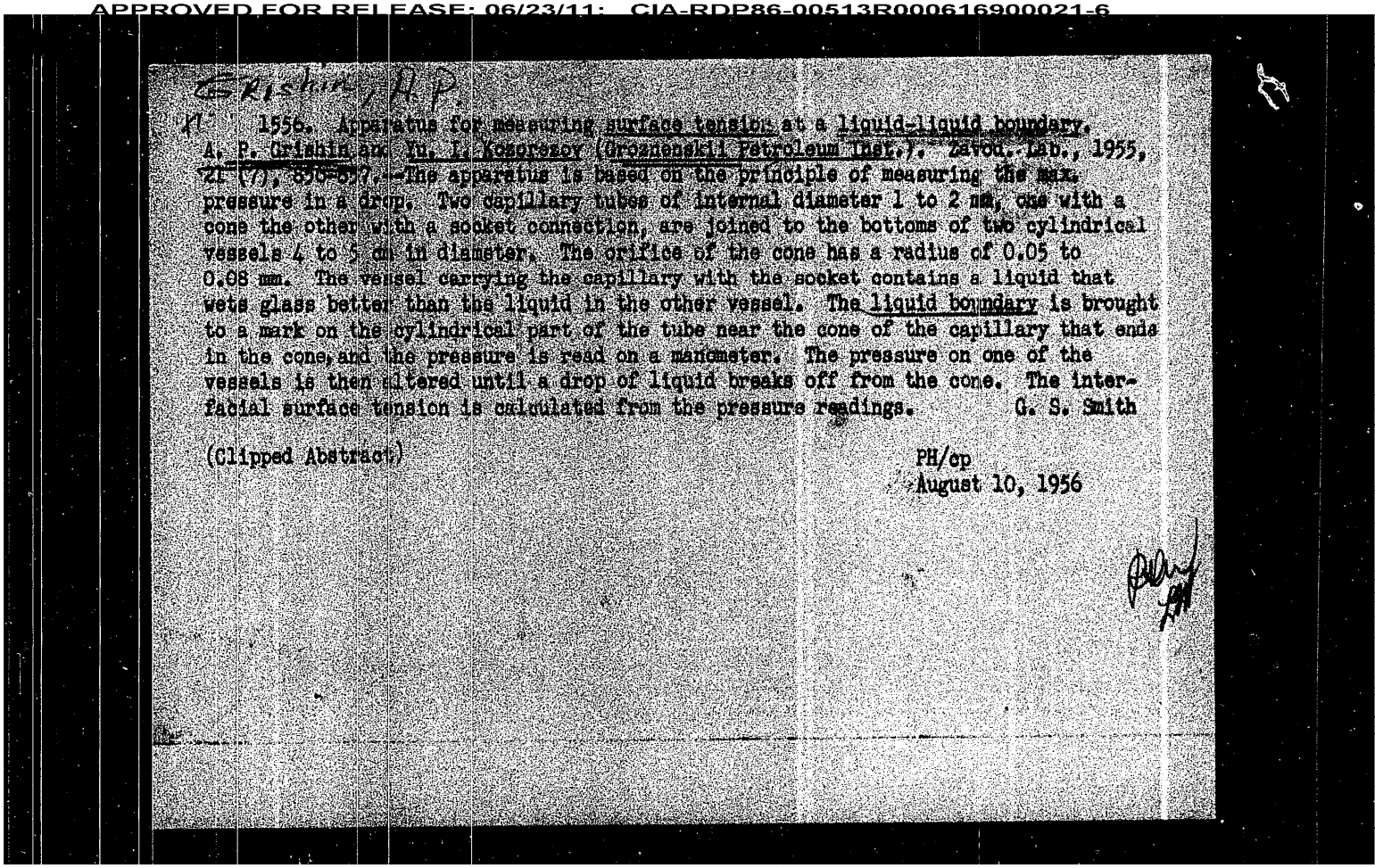
Grishin, AP

Phys.

Absolute luminescence yield of γ-scintillations in naphthalene crystals containing anthracene. M. D. Galanin and A. P. Grishin. *Soviet Phys., JETP* 3, 32-4 (1956) (Engl. translation).—See *C.A.* 50, 14380*b*. B. M. R.

2

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000616900021-6



Grishin, M. P.

1556. Apparatus for measuring surface tension at a liquid-liquid boundary. A. P. Grishin and Yu. I. Kosorezov (Groznenskii Petroleum Inst.). Zavod. Lab., 1955, 21 (7), 856-857.—The apparatus is based on the principle of measuring the max. pressure in a drop. Two capillary tubes of internal diameter 1 to 2 mm, one with a cone the other with a socket connection, are joined to the bottoms of two cylindrical vessels 4 to 5 cm in diameter. The orifice of the cone has a radius of 0.05 to 0.08 mm. The vessel carrying the capillary with the socket contains a liquid that wets glass better than the liquid in the other vessel. The liquid boundary is brought to a mark on the cylindrical part of the tube near the cone of the capillary that ends in the cone, and the pressure is read on a manometer. The pressure on one of the vessels is then altered until a drop of liquid breaks off from the cone. The interfacial surface tension is calculated from the pressure readings. G. S. Smith

(Clipped Abstract)

PH/cp
August 10, 1956

L 44566-66 EWT(m)/T WW/JW/JWD/WE

ACC NR: AP6030024 SOURCE CODE: UR/0020/66/169/005/1115/1118

AUTHOR: Grishin, A. M.; Kondrat'yev, V. N. (Academician)

ORG: Saratov State Pedagogical Institute (Saratovskiy gosudarstvennyy pedagogicheskiy institut)

TITLE: Spark ignition

SOURCE: AN SSSR. Doklady, v. 169, no. 5, 1966, 1115-1118

TOPIC TAGS: combustion, spark ignition, propulsion, flame propagation

ABSTRACT: Previous models of spark ignition processes had the disadvantage of not allowing for the difference between effects of the heat transfer from the reaction zone to the fresh gas on the development of an ignition center and on the actual flame propagation. In the present study, a simple model of spark ignition is formulated which does not have these shortcomings. All thermophysical parameters were assumed to be constant, and the reaction was assumed to be of the zero order. The model, based on Diracs delta function, was used to derive an expression for the minumum energy required for ignition. A system of equations which can be solved on a computer was also derived for determining the temperature and the concentration in the ignition center. Orig. art. has: 17 formulas. [PV]

SUB CODE: 21/ SUBM DATE: 18Jan66/ ORIG REF: 007/ OTH REF: 003/ ATD PRESS: 5079

Card 1/1 UDC: 541.126.4

L 27150-66 EWT(m)/T WW/JW/WE

ACC NR: AP6012684 SOURCE CODE: UR/0170/66/010/004/0523/0530

AUTHOR: Grishin, A. M.

54
B

ORG: State Pedagogical Institute, Saratov (Gosudarstvennyy pedagogicheskiy institut)

TITLE: Ignition by a heated plate

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 10, no. 4, 1966, 523-530

TOPIC TAGS: ignition, heat convection, thermal analysis, gas ignition

ABSTRACT: The Shvets method (M. Ye. Shvets, PMM, vyp. 3, 1949) has been used to analyze the ignition problem of a gas reacting to a heated plate when the reactive gas is fixed and forced or natural convection takes place. The analytical conditions of ignition were obtained. The ignition conditions for the gas and forced natural convection agree with well-known exact values (P. H. Thomas and P. S. Bower, Trans. Far. Loc., 57, 2007, 1961; Tau-i-Tung, Sb. "Voprosy zazhiganiya i stabilizatsii plameni," IL, 1963). Orig. art. has: 36 formulas and 1 table. [NT]

SUB CODE: 20/ SUBM DATE: 23Aug65/ ORIG REF: 010/ OTH REF: 003

Card 1/1 BK

UDC: 536.468

2

L 26117-66 EWP(m)/EWA(h)/EWT(d)/EWT(l)/EWT(m)/T/EWA(d)/EWA(l) IJP(c) WW/DJ/WB

ACC NR: AP6014993 SOURCE CODE: UR/0170/66/010/005/0653/0659

58
B

AUTHOR: Grishin, A. M.

ORG: State Pedagogical Institute, Saratov (Gosudarstvennyy pedagogicheskiy institut)

TITLE: The use of a method of integral relationships for solving problems in the theory of ignition \\

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 10, no. 5, 1966, 653-659

TOPIC TAGS: combustion, ignition, gas combustion, thermal explosion

ABSTRACT: Dorodnitsyn's method of integral relationships (Dorodnitsyn A. A. ZhPMTF, No. 3, 1960.) was used to solve in first-order approximation the nonsteady state system of equations for thermal explosion. Solutions were obtained for ignition in an infinite cylinder with an arbitrary change of the wall temperature and for self-ignition of an incompressible reacting fluid flowing in an infinite cylinder with allowance for friction. The method can be also applied to other ignition problems. Orig. art. has: 32 formulas. [PV]

SUB CODE: 21/ SUBM DATE: 23Aug65/ ORIG REF: 013/ OTH REF: 003/ ATD PRESS: 4253

Card 1/1 UDC: 536.46

L 42127-65
ACCESSION NR: AP5009545

points at which two different solutions of (1) coalesce into one, and the problem is solved by using a suitable Green's function to replace the nonlinear problem (1) by an equivalent nonlinear integral equation, which is then linearized with the aid of a method originally developed by Tricomi. The approximate results are compared with the exact ones for one-dimensional thermal explosion in flat, cylindrical, and spherical reactors. A physical interpretation of the linearization method is proposed, relating to the thermal stability of the combustible system. Orig. art. has: 4 figures and 47 formulas. [02]

ASSOCIATION: None

SUBMITTED: 25Apr63 ENCL: 00 SUB CODE: FP, NP

NO REF SOV: 011 OTHER: 002 ATD PRESS: 3239

Card 2/2

L 42127-65 EPA/EPA(s)-2/EWT(m)/EPF(c)/EPR/EWA(c) Paa-4/Pr-4/Ps-4/Pt-7
ACCESSION NR: AP5009545 WW/JW/JWD S/0207/65/000/001/0068/0075

AUTHOR: Grishin, A. M. (Saratov); Todes, O. M. (Saratov)

TITLE: Concerning the determination of ignition conditions

SOURCE: Prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 1, 1965, 68-75

TOPIC TAGS: ignition, thermal explosion, combustion kinetics

ABSTRACT: The ignition conditions are determined by linearizing the differential equation for thermal explosion

$$\frac{\partial^2\theta}{\partial x^2}+\frac{\partial^2\theta}{\partial y^2}+\frac{\partial^2\theta}{\partial z^2}+\delta e^{\theta}=0 \qquad (1)$$

where θ is the dimensionless temperature and δ is a dimensionless kinetic parameter, under appropriate boundary conditions. It is shown first that for certain values of δ the equation ceases to have real solutions, and that these values, δ_*, correspond to thermal self-ignition. The problem reduces therefore to a determination of these values of δ. Mathematically this is equivalent to finding the

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L 2275-66
ACCESSION NR: AT5007944

12

regulating element. Introduction of supplementary connections among the circuits permits realization of a regulation system consisting of automatic circuits, whose design can be carried out by ordinary methods. It is proposed to stabilize the flight phase of the accelerated particle bunch at any radius of the accelerator with an accuracy of ±10% for maximum deviation of the magnetic field of ±20 oersteds (±0.2%) within the range of measurement of intensity of the internal beam from 1 to 500 microamperes, with frequency of the accelerating field equal to 11-13 Mc. Experimental investigations of the sensor were carried out on an actual operating model of a cyclotron with spatially varying magnetic field in the Laboratory of Nuclear Problems of OIYaI. The limiting energy of the accelerated particles in this accelerator was 10-15 Mev for beam current of 1-10 microamperes, the frequency of the accelerating voltage being 10.5 Mc, and the voltage in the Dee 30-40 kilovolts. A model of the phase transducer was investigated on the cyclotron model of this Laboratory. "In conclusion the authors thank for their constant attention and helpful discussions during the work V. P. Dmitriyevskiy, Yu. N. Demisov, A. A. Kropin, S. M. Rubchinskiy, and F. A. Vodop'yanov." Orig. art. has: 2 figures, 3 formulas.

ASSOCIATION: Radiotekhnicheskiy institut AN SSSR (Radio Engineering Institute, AN SSSR)

SUBMITTED: 26May64 ENCL: 00 SUB CODE: NP

NO REF SOV: 000 OTHER: 000

Card 3/3

ACCESSION NR: AT5007944

siderably lowered if one solves the problem of phase stabilization of the passage with the help of a many-circuit automatic regulation system, in which one utilizes as the input coordinates the flight phase of the bunch of accelerated particles at several values of the radius. Each circuit of the system contains a regulated object and a regulator. The object of regulation is described by an equation that connects the variation of the regulated quantity, namely the flight phase ϕ_i at radius r_i, with the regulating action ΔH_i of the magnetic field. The change ΔH_{iB} in the magnetic field is the exciting action. The system regulator contains a measuring element, a regulating element, and an amplifying device. The measuring element serves to measure the flight phase ϕ_i; it consists of a sensing element and a phase transducer. The sensor is a device for obtaining an electrical signal proportional to the instantaneous azimuthal density of the particle bunch. This signal enters the phase transducer, where it is amplified and its phase is compared with the phase of the accelerating voltage. The regulating element is a system of 22 pairs of windings for magnetic field correction, by means of which the required dependence of the field is established upon the radius and the current source supplying these windings. The entire operating interval of the orbit radii is divided by the windings into 22 parts; in each of the parts the phase is stabilized by an individual regulation circuit for which the corresponding pair of correcting windings is the

L 2275-66 EWT(m)/EPA(w)-2/EWA(m)-2 IJP(c) GS

ACCESSION NR: AT5007944 UR/0000/64/000/000/0616/0619

AUTHOR: Grishin, A. M.; Kuz'min, A. A.

TITLE: Automatic phase stabilization of the passage of a bunch of accelerated particles in a relativistic cyclotron

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 616-619

TOPIC TAGS: high energy accelerator, cyclotron, automatic frequency control, phase shift, relativistic particle

ABSTRACT: In cyclotrons with spatial variation of the magnetic field up to high energies, assurance of isochronicity necessitates that the magnetic field average over the azimuth should increase in the radial direction according to a definite law. Deviation from the dependence of the magnetic field from the required law produces a phase shift in the flight of accelerated particle bunches and disrupts optimum acceleration regime. For the 700 Mev relativistic cyclotron being planned, the permissible tolerance in accuracy and the instability in time of the magnetic field are of the order of 10^{-4}. This tolerance corresponds in magnitude to a phase shift in the passage of a bunch equal to ±1 radian. These requirements can be con-

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ACCESSION NR: AP3003558

Formula (1) considerably simplifies the determination of the critical conditions for self-ignition in the presence of conduction and convection since it is not necessary to obtain the exact solution of the nonlinear equation. In some cases it is also possible to determine t_e by experiments on models with nonreactive substances having geometrical and thermal parameters similar to those of the actual system. The accuracy obtainable by this method was also established for the cases in which the Biot number is much larger or much smaller than 1. The article was presented by Academician Ya. B. Zel'dovich, 14 February 1963. Orig. art. has: 33 formulas.

ASSOCIATION: Saratovskiy politekhnicheskiy institut (Saratov Polytechnical Institute)

SUBMITTED: 30Jan63 DATE ACQ: 30Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 006 OTHER: 000

Card 3/3

where t_p is the time required to complete combustion at a constant combustion rate and initial temperature, t_e is the time required for thermal relaxation (cooling in the absence of combustion), E is activation energy, q is specific heat release per unit volume, c is specific heat, and T_o is initial temperature. Is is now shown that the formula can also be used as a criterion for self-ignition in vessels of arbitrary geometry when heat removal takes place by convection as well as by conduction. When applied to full and hollow cylinders and to a sphere, the formula yielded results which deviated only 2—3% from the exact solution obtained by Frank-Kamenetskiy. Term t_e is determined by the equation

$$\alpha \nabla^2 f + \frac{1}{t_e} f = 0, \qquad (2)$$

where α is the heat transfer coefficient, and f is a function defined by the equation for the regular cooling regime

$$T - T_o = C_1 f_1(x, y, z)\exp(-t/t_e).$$

ACCESSION NR: AP3003558 S/0020/63/151/002/0365/0368

AUTHOR: Grishin, A. M.; Todes, O. M.

TITLE: Thermal explosion in the presence of heat transfer by convection and conduction

SOURCE: AN SSSR. Doklady, v. 151, no. 2, 1963, 365-368

TOPIC TAGS: criterion for self-ignition, heat conduction, heat convection, thermal explosion

ABSTRACT: A theoretical analysis was made to establish the accuracy and applicability of the following formula, previously derived by the author, as a criterion for thermal explosion on the assumption that heat removal takes place by convection only:

$$t_p \leqslant e^{\frac{q}{cT_0}\,\frac{E}{RT_0}} t_e, \qquad (1)$$

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L 17409-63

S/207/63/000/002/025/025

Errata in the paper...

author notes also that Section 4 contains errors as a consequence of erroneous postulates in Section 3 related to the maximum value of the autoignition temperature. The author thanks O. M. Todes for his valuable remarks.

Card 2/2

L 17409-63 EPA/EPR/EPF(c)/EWT(m)/BDS/ES(s)-2 AEDC/AFFTC/APGC/RPL/SSD
Paa-4/Pr-4/Pt-4/Ps-4 WW/JW/JWD/H S/207/63/000/002/025/025

AUTHOR: Grishin, A. M. (Saratov) 8 /

TITLE: Errata in the paper "Some problems in the ignition theory"

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, 1963, 175-176

TEXT: Several errors in the paper mentioned in the title (Ref. 1: Grishin, PMTF, 1962, no. 5) resulted from the choice of the signs in expressions (2.7) of the paper. For the maximum value of μ one should have taken a sign + in front of the root. The discussions in Section 3, on the basis of which the maximum temperature for autoignition θ was found to be 0.891, were incorrect because the m value does not remain constant but changes with the changing μ and, consequently, changes with the change of the vessel dimensions and the type of propellant. Also, inasmuch as the critical conditions in Section 2 are also incorrect, it is necessary to introduce certain corrections in the solution of the problem for the ignition of a propellant mixture by a heated cylinder. A detailed mathematical analysis is given along with the conclusion to the effect that for equal k values the ignition temperature is always higher than the autoignition temperature. The

Card 1/2

GRISHIN, A.M. (Saratov)

Some problems in the theory of combustion. PMTF no.5:75-79 S-O '62. (MIRA 16:1)

(Combustion)

The Influence of Boron on the Properties and Conditions of Thermal Treatment of Stainless Spring Steel

are 6 figures, 1 table and 15 references, 11 of which are Soviet, 3 English and 1 German.

Card 4/4

The Influence of Boron on the Properties and Conditions of Thermal Treatment of Stainless Spring Steel

boundaries (as well as along inclusions) which interfere with the movement of dislocations. An enrichment in boron of the boundary zones slows down the process of diffusion in these zones. Thus the decomposition process takes place practically uniformly throughout the whole volume of grains (although it begins in zones of structural non-uniformity). The limiting or critical concentration of boron above or below which the elastic properties of the steel decrease, is apparently near to the limit of solubility of boron in solid solution and for this steel corresponds to 0.005% (calculated on the charge). The effect of boron depends on hardening conditions; the highest increase in the elasticity limit is obtained after hardening from 900 to 950°C. Boron additions do not change the kinetics of hardening on annealing and apparently have no influence on the nature of separating phases. Optimum conditions for the steel with and without boron are practically identical. There

The Influence of Boron on the Properties and Conditions of Thermal Treatment of Stainless Spring Steel

(650, 700, 775 and 825°C) after hardening from 925°C on the above properties of steel without and with various boron additions - Fig 2 and the table; the microstructure of steel without and with 0.005% of boron after hardening from 925°C and annealing for 1 hour at 700°C - Fig 3; the dependence of the elasticity limit on the duration of loading of the steels without and with 0.003 and 0.005% of boron - Fig 4; the influence of the soaking time at the annealing temperature (700°C) on the elasticity limit, elasticity modulus, hysteresis, residual deformation and hardness of membranes from the steel without and with boron additions (after hardening from 925°C) - Fig 5; the dependence of elastic properties of membranes from the steel after annealing for 4 hours at 650°C and for 2 hours at 700°C, on the boron content - Fig 6. It was found that the introduction of boron in an amount up to 0.007% into E1702 steel increases its hardness and the elasticity limit after annealing. It is considered that the influence of boron is due to the formation of so called adsorption zones along the grain

SOV/133-59-9-21/31

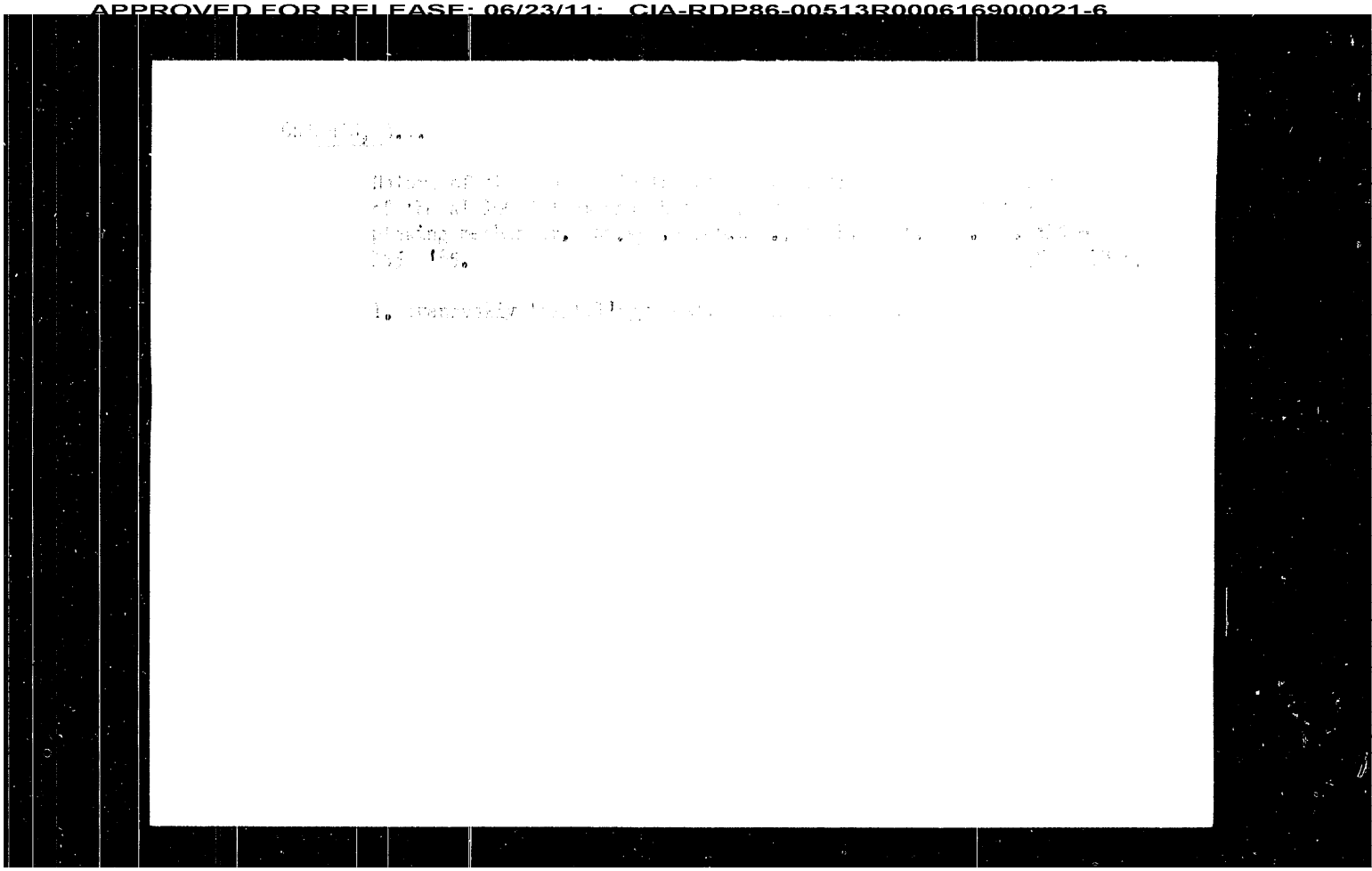
AUTHORS: Rakhshtadt, A.G., Candidate of Technical Sciences and Grishin, A.M., Engineer

TITLE: The Influence of Boron on the Properties and Conditions of Thermal Treatment of Stainless Spring Steel

PERIODICAL: Stal', 1959, Nr 9, pp 830-835 (USSR)

ABSTRACT: The influence of boron additions on the properties of spring steel EI702 (N36KhTYu) was investigated in order to determine the optimum concentration of boron and conditions for thermal treatment for a maximum increase in the elastic properties of the steel. The chemical composition of steels with and without boron used for the investigation is given in the text. Steels with the following content of boron were tested: 0.003, 0.005 and 0.007 (calculated on the charge smelted). After forging, hot rolling and hardening steel was rolled into strip 0.25 to 0.3 mm thick from which specimens (as well as semis for membranes) were stamped. The influence of hardening temperature on the elasticity limit, elasticity modulus and hardness of steel with and without boron after annealing for 1 hour at 700°C - Fig 1; the influence of soaking time at various annealing temperatures

Card 1/4



GRISHIN, A.I.

Pathological shifts developing within the organism in hypoxia and hypercapnia. Trudy TSIU 59:62-81 '63. (MIRA 17:9)

1. III kafedra khirurgii (zav. prof. V.I. Kozinskiy) Tsentral'nogo instituta usovershenstvovaniya vrachey na baze Tsentral'noy klinicheskoy bol'nitsy Ministerstva putey soobshcheniya (nachal'nik zasluzhennyy vrach RSFSR V.N. Zakharchenko).

PONOMAREV, L.Ye., kand. med. nauk; GRISHIN, A.I.

Anesthesia in patients with nodular forms of goiter accompanied by functional disorders of external respiration. Trudy TSIU 59:204-213 '63. (MIRA 17:9)

1. III kafedra khirurgii (zav. prof. V.I. Kazanskiy) TSentral'nogo instituta usovershenstvovaniya vrachey na baze TSentral'nogo klinicheskoy bol'nitsy Ministerstva putey soobshcheniya (nachal'nik zasluzhennyy vrach RSFSR V.N. Zakharchenko).

GRISHIN, A.I.

Clinical aspect of hypoxic states developing during anesthesia in relation to its form and degree. Trudy TSIU 59:111-128 '63. (MIRA 17:9)

1. III kafedra khirurgii (zav. prof. V.I. Kazanskiy) TSentral'nogo instituta usovershenstvovaniya vrachey na baze TSentral'noy klinicheskoy bol'nitsy Ministerstva putey soobshcheniya (Nachal'nik zasluzhennyy vrach RSFSR V.N. Zakharchenko).

GRISHIN, A.I.

Design and study of [illegible] '63
Izv. vys. ucheb. zav.; [illegible]

1. [illegible]

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000616900021-6

GRISHIN, A.I.

Stability of the performance of the batten mechanisms of modernized looms at high speeds. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.3:140-149 '63. (MIRA 16:9)

1. Ivanovskiy tekstil'nyy institut imeni M.V.Frunze.
(Looms—Testing)

GRISHIN, A.I.

Experimental testing of the AT-100-5 loom during starting and steady movement under various speed conditions. Izv.vys.ucheb. zav.; tekh.tekst.prom. no.2:97-106 '63. (MIRA 16:6)

1. Ivanovskiy tekstil'nyy institut imeni M.V.Frunze.
(Looms--Testing)

GRISHIN, A. I.

Studying the performance of the picking mechanism of a loom under high-speed operation conditions. Izv. vys. ucheb. zav.: tekh. tekst. prom. no.4:135-140 '62. (MIRA 15:10)

1. Ivanovskiy tekstil'nyy institut imeni M. V. Frunze.

(Looms—Testing)

Recent trends in the development ...

ped, both for inorganic and organic analysis: Some are based on spectrometry. As far as the computer technique is concerned, three main trends are considered: The use of universal electronic computers for scientific and engineering calculations; the use of computers in economics and for processing large amounts of information; Application of control computers for the control and automatic control of industrial processes. In new computers the existing mercury and CRT delay lines are replaced by magnetic core memories and tubes by transistors. Modular technique is widely used together with micro-miniaturization. A new storage element has been developed based on the effect of stable internal polarization. Another interesting new component is the magnetic triode, consisting of a p-n junction, formed by alloying the intrinsic material with lead and tellurium.

Card 4/4

Recent trends in the development ...

semi-automatic instruments. Those of interest are stated to be the newly developed series of standardized galvanic gas analyzers based on the micro-concentration of oxygen. Another method has been used in developing a spectrophotometric gas analyzer, with a sensitivity 10 times greater than that of the basic instrument; the instruments have ranges from 0 - 1.0 % volume of nitrogen in argon and 0 - 0.5% volume of nitrogen in helium. The range of gas analyzers based on infra-red absorption has been increased by several new instruments. Mention is made of a new instrument calibrated in 0 - 0.05 % CO_2, with output adapted to an automatic control system. New types of mass-spectrometers have been developed, with mass number ranges 1 to 600 ME, revolution 300 and sensitivity (argon) 0.002 %. All spectrometers are being revised to form a single range of six instruments. A radiospectrometer has been developed for the electron paramagnetic particles: Its production has started. Electrometric methods of liquid analysis and control are under development. Of interest is stated to be an industrial instrument for measuring and controlling HCl concentration in wood pulp with a varying solid to liquid phase. Other types of concentration meters were also develo-

Recent trends in the development ...

accuracy feed-back devices have been developed for measuring various parameters such as pressure and vacuum gauges, strain gauges, thermometers and density meters. Nuclear resonance methods are being developed for contactless flow measurement. Ultrasonic and radio-interference methods are used for level measurements and recordings. All new types of instruments are incorporated in new automatic control systems, developed around them. In 1961, 400 types of electrical measuring instruments were in production, varying from laboratory standards to high power distributing panel instruments. High sensitivity miniature meters are under development (1 - 2 cm^3 volume, 5 - 10 microcamps range). The accuracy of portable instruments is being improved and their dimensions are reduced. Digital instruments, both of continuous action and sampled data types continue to find more and more applications. As far as analytical instruments are concerned, the main trend is to increase the number of methods of analysis applicable in practice, to increase the disdriminating properties, sensitivity and speed of operation, to standardize the electrical output, to develop analytical instruments suitable for automatic control processes, to develop automatic and

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D201/D302

9,6000 (1040, 1139, 1159)

AUTHORS: Grishin, A.I., Kavalerov, G.I., Nize, V.E., Orshanskiy D.L., Pavlenko, V.A., Sotskov, B.S., and Yurkevich, A.P.

TITLE: Recent trends in the development of instrumentation

SOURCE: Priborostroyeniye, no. 1, 1962, 1 - 5

TEXT: A survey of recent trends in the development of instrumentation within the Soviet-bloc is given. The main objective is the standardization of instruments with the aim of simplifying the automation of industrial processes. A group of new temperature gauges is based on the dependence of gas viscosity on temperature. Another class of gauges is based on the temperature change of a plate resistance, in conjunction with a compensating plate and an electromagnetic circuit. Efforts are made to utilize the Austin effect. For high temperature operation (above 2000°C), graphite p-n junction thermocouples have been developed. New flow gauges have been produced for the petroleum industry. Several interchangeable high-

Card 1/4

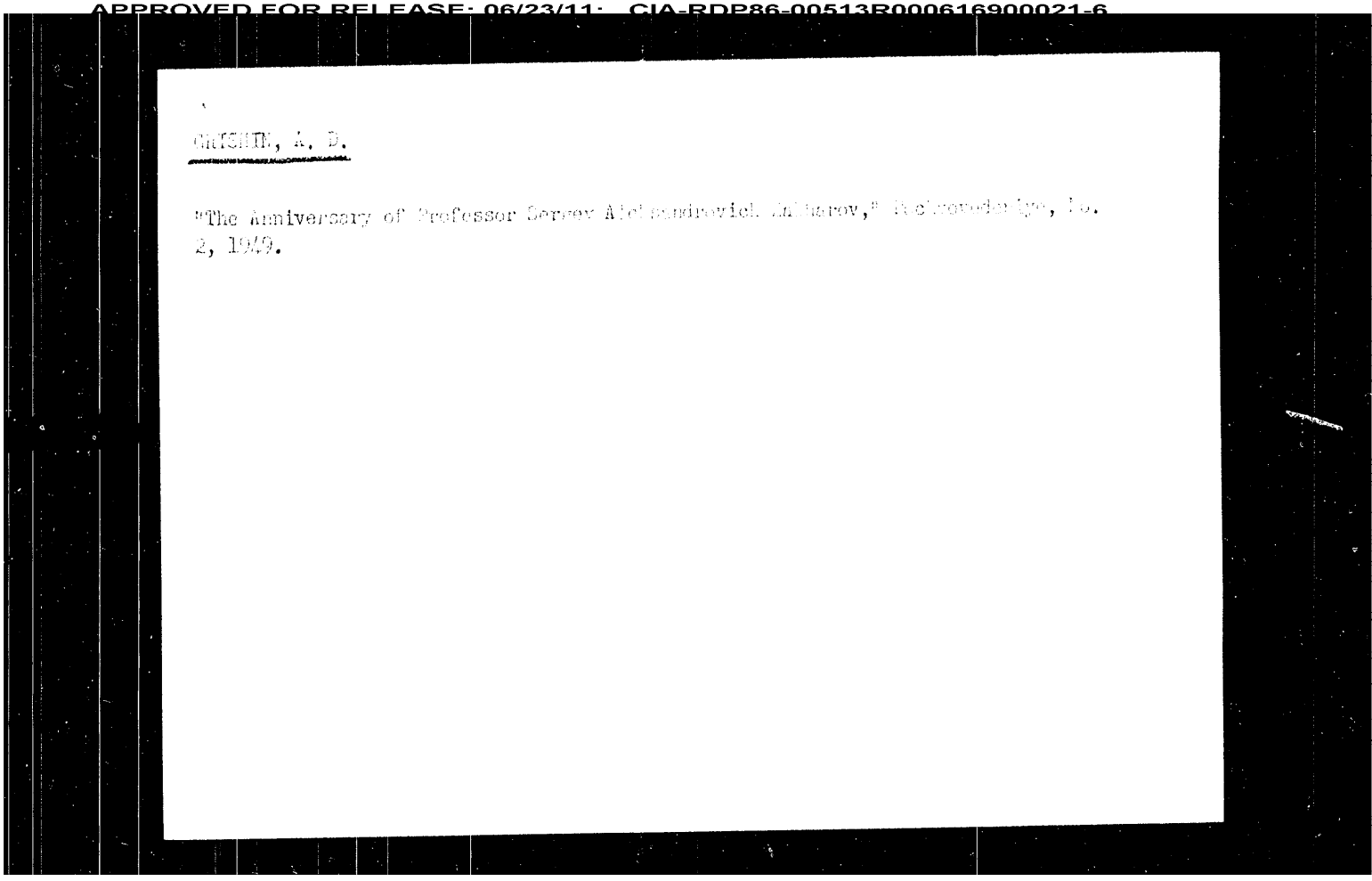
1. [redacted], A. D.

2. USSR (600)

4. Soils

7. Opening of the memorial meeting in honor of Professor Georgi Alexsandrovich Zakharov. Pochvovedenie No. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, May 1953, Unclassified.



GRISHIN, A. D.

"The Anniversary of Professor Sergey Aleksandrovich Zhdanov," Meteorologiya, No. 2, 1949.

ACC NR: AP6021452 (N) SOURCE CODE: UR/0413/66/000/011/0075/0075

INVENTOR: Ustinov, V. V.; Grigor'yeva, N. M.; Grishin, A. A.; Belov, L. V.; Brusilovskiy, A. A.; Sinalayev, O. P.

ORG: None

TITLE: A method for measuring the thickness and rate of application of films. Class 42, No. 182339

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 11, 1966, 75

TOPIC TAGS: surface film, resonator, quality control, industrial automation

ABSTRACT: This Author's Certificate introduces a method for using two piezoelectric resonators to measure the thickness and rate of deposition of a film on a base. The procedure is designed for a wide range of thicknesses and for obtaining information in a discrete form which is convenient for automation of the process. The monitored portion of the flow of material being applied to produce the film is switched from one resonator to the other and back again after the required thickness has been reached in the given section. Film thickness is determined from the number of reversals while the rate of application is determined from the reversal frequency.

SUB CODE: 11, 13/ SUBM DATE: 03Apr65

UDC: 531.7;621.9.08;531.717.1;531.767

Card 1/1

GRISHIN, Anatoliy

Article entitled "Soviet Doctors in Basra"by T. P. Kaliteyevsky describes conditions during their assignment. It stated in part: When we agreed to work there [no date mentioned] as part of a small group of Soviet doctors we knew well that besides the interesting impressions promised by unfamiliar surroundings there awaited us the prospect of working in difficult conditions. .....Probably hardest worked was our eye doctor, Anatoly Grishin of Orenburg. Except for an Indian doctor who had a private practice, there was not another eye specialist in all the district. Dr. Grishin worked in a ward for 40 patients, received outpatients, performed countless operations. An operation costs a lot of money in Iraq, more than poor people can pay. Dr. Grishin operated free. He restored sight to dozens of people. Never will we forget the delight and gratitude of two little girl sfrom a poor family who were born blind. They first beheld the world after Dr. Grishin's successful operations on them.

SO: New-Times, No. 37, 13 Sep 61

GRISHIN, A.

People in big-time flying. Grazhd.av 17 no.9:3-5 S '60. (MIRA 13:9)

(Flight crews)

S/084/61/000/003/008/002
A114/A133

AUTHOR: Grishin, A.

TITLE: Moscow - Magadan Arctic air route

PERIODICAL: Grazhdanskaya aviatsiya, no. 3, 1961, 16 - 17

TEXT: During the past three months the former Moscow-Magadan 9,000 km long air route via Omsk, Irkutsk, Khabarovsk and Nikolayevsk on the Amur River, has been replaced by a new 2,500 km shorter route which follows the Arctic coast via Arkhangel'sk, Nar'yan-Mar and Tiksi. The Il-18 turboprop started on the Sheremet'yevo Airfield and was piloted by the Test Pilot Vitaliy Makarov, Copilots A.D. Il'in and N.J. Kuvshinov and a crew consisting of Second Pilot E.J. Shekhov, Navigators A.S. Bertsinskiy and A.F. Shubin, Flight Mechanic S.S. Lavrent'yev and Radio Operator A.J. Glybin. The flight supervised by P.P. Moskalenko, Deputy Chairman of the Upravleniye Polyarnoy Aviatsii ГУГВФ [GUGVF] (Administration of the Polar Aviation of the General Direction of the Civil Air Fleet) has been completed in 11 1/2 hours at an approximate altitude of 8,000 m. Among the 80 passengers on the flight Magadan-Moscow were Anna Mironovna Rassokha and Ivan Timofeyevich Moiseyanko working in the Mine im. Gastello. There are 8 photographs.

Card 1/1

GRISHIN, Aleksey Akimovich

[The district newspaper in the struggle to improve agriculture] Raionnaia gazeta v borʹbe za podʺem selʹskogo khoziaistva. [Moskva] Moskovskii rabochii, 1957. 77 p. (MIRA 11:5)
(Journalism, Agricultural)

GRISHIN, A.A.

Our method of assembly work. Stroi.i dor.mashinostr. 1 no.1:36 Ja '56.
(MLRA 10:1)

1. Slesar'-sborshchik Bryanskogo zavoda dorozhnykh mashin.
(Bryansk--Road machinery)

GRISHIN, A.; PETROV, A.

Bank control and the efficient utilization of funds for equipment in agricultural construction. Den. i kred. 19 no.6:51-60 Je '61. (MIRA 14:9)

(Banks and banking) (Agriculture--Equipment and supplies) (Construction industry--Finance)

KIN, B., polkovnik intendatskoy sluzhby; GRISHIN, A., polkovnik intendatskoy sluzhby; GRITSYNIN, N., podpolkovnik intendantskoy sluzhby

Strengthen business accounting. Tyl i snab. Sov. Voor. Sil 21 no.12:54-58 D '61. (MIRA 15:1)
(Accounting)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000616900021-6

GORBUNOV, V.; GRISHIN, A; SIMAKOV, M.

Plan-model of the harbor in the dispatcher room. NTO 2 no.7:45 Jl '60. (MIRA 13:7)

1. Chleny Nauchno-tekhnicheskogo obshchestva vodnogo transporta, Novosibirsk.
(Novosibirsk--Harbors)

GRISHIN, A.

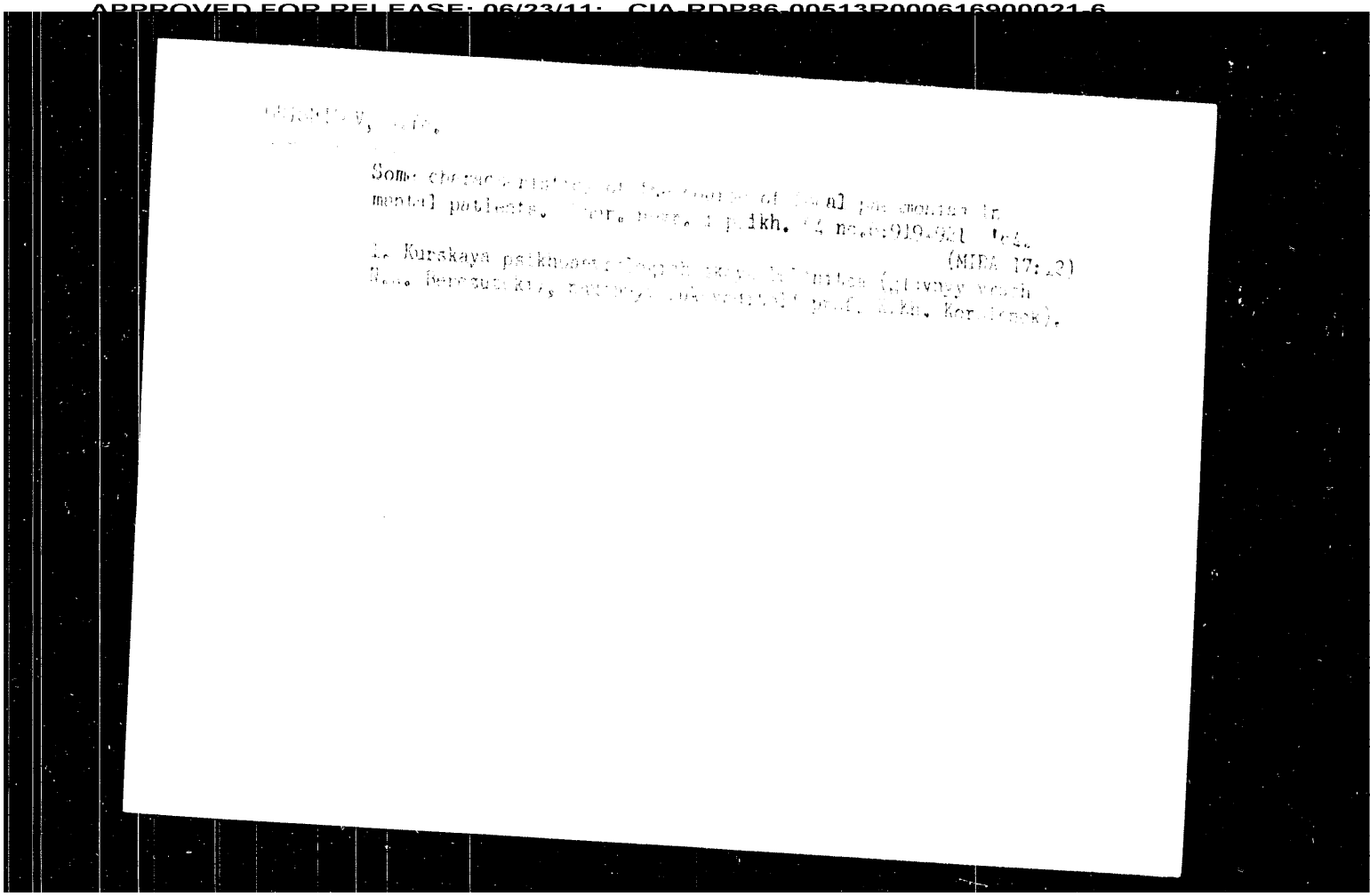
Securing the safety of technological processes. Pozh.delo 5 no.9:5 S '59. (MIRA 13:1)

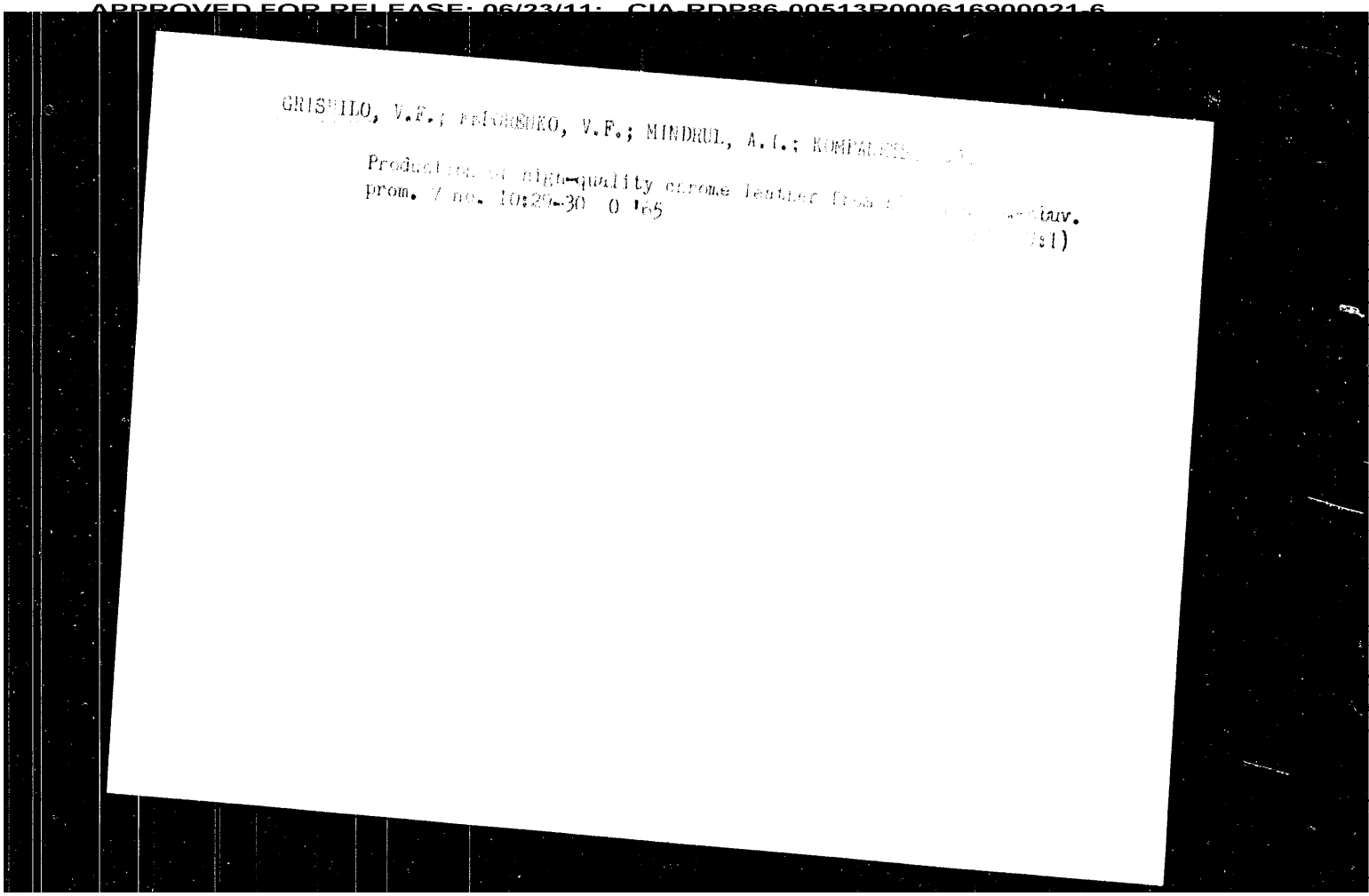
1. Glavnyy inzhener Kazanskogo zhirokombinata imeni Vakhitova, predsedatel' pozharno-tekhnicheskoy komissii.
(Kazan--Factories--Fires and fire prevention)

OLEYNIK, N.M. [Oliinyk, M.M.]; PONOMAREV, S.G. [Ponomariov, S.H.], kand. tekhn. nauk; GRISHILO, V.F. [Hryshylo, V.F.]; LYSENKO, G.P. [Lysenko, H.P.]; CHERANOVSKAYA, S.B. [Cheranovs'ka, S.B.]

Color coating of grain-side and refined leather. Leh. prom. no.1:41-43 Ja-Mr '65.

(MIRA 18:4)





GRISHILO, V.F.; PETROSHKO, V.F.; MINDRUL, A.I.; KOMPANIETS, [illegible]

Production of high-quality chrome leather from [illegible] prom. 7 no. 10:29-30 O '65

[illegible] (MIRA 18:11)

SHIROKOV, B.G., inzh.; GRISHILO, V.F., inzh.

Manufacture of shoe materials from several layers of split leather. Kozh.-obuv.prom. 6 no.11:26 N '64.

(MIRA 18:4)

BABCHUK, M.O.; GRISHILO, L.I. [Hryshylo, L.I.]

Leather for the welts of footwear made on the semiautomatic FKP-1 machine. Leh. prom. no.4:30-31 O-D '64 (MIRA 18:1)

KHANANAYEV, L.I.; GRISHILO, G.F.

Dynamics of tissue respiration of the pancreas and the spleen in collateral blood circulation. Pat. fiziol. i eksp. terap. 8 no.6:75-76 N-D '64. (MIRA 18:6)

1. Ivano-Frankovskiy meditsinskiy institut.

KOSHIS, T.F., GRISHILO, A.F.

Effect of tetracycline on the [illegible] of the liver and the intestinal microflora in white mice. Antibiotiki 10 no.7:636-640 Jl '65. [illegible]

1. Kafedra patologicheskoy anatomii [illegible] i kafedra mikrobiologii (zav. - prof. [illegible] Ivanova) Ivano-Frankovskogo meditsinskogo instituta.

GRISHICHEVA, R.M.; GRICHUK, Yu.P.

Effect of meteorological factors on the accuracy of radiogeodetic measurements. Geod. i kart. no.5:11-16 My '62. (MIRA 15:7)
(Radar in surveying)

GRISHEYENKO, M.I.

KSENOFONTOVA, A.I., dotsent; VLADIMIRSKIY, V.V., otvetstvennyy redaktor; GRISHEYENKO, M.I., redaktor; KOROVENKOVA, Z.A., tekhnicheskiy redaktor

[Collection of problems on mine ventilation; reference data for calculations, examples with solutions and problems with answers. Manual for mining institutes of higher learning] Sbornik zadach po rudnichnoi ventiliatsii; spravochnye dannye dlia raschetov, primery s resheniiami i zadachi s otvetami. Uchebnoe posobie dlia gornykh vuzov. Izd. 2-e, perer. i dop. Moskva, Ugletekhizdat, 1954. 347 p.
(Mine ventilation) (MLRA 8:3)

GRISHENKOVA, L.N.; GUBYAYEV, N.F.

Use of the underground waters of [illegible]
Moscow Province. Mosk. trudy AKKH no.27:114-135 '62.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000616900021-6

GRISHENKOVA, K.P.

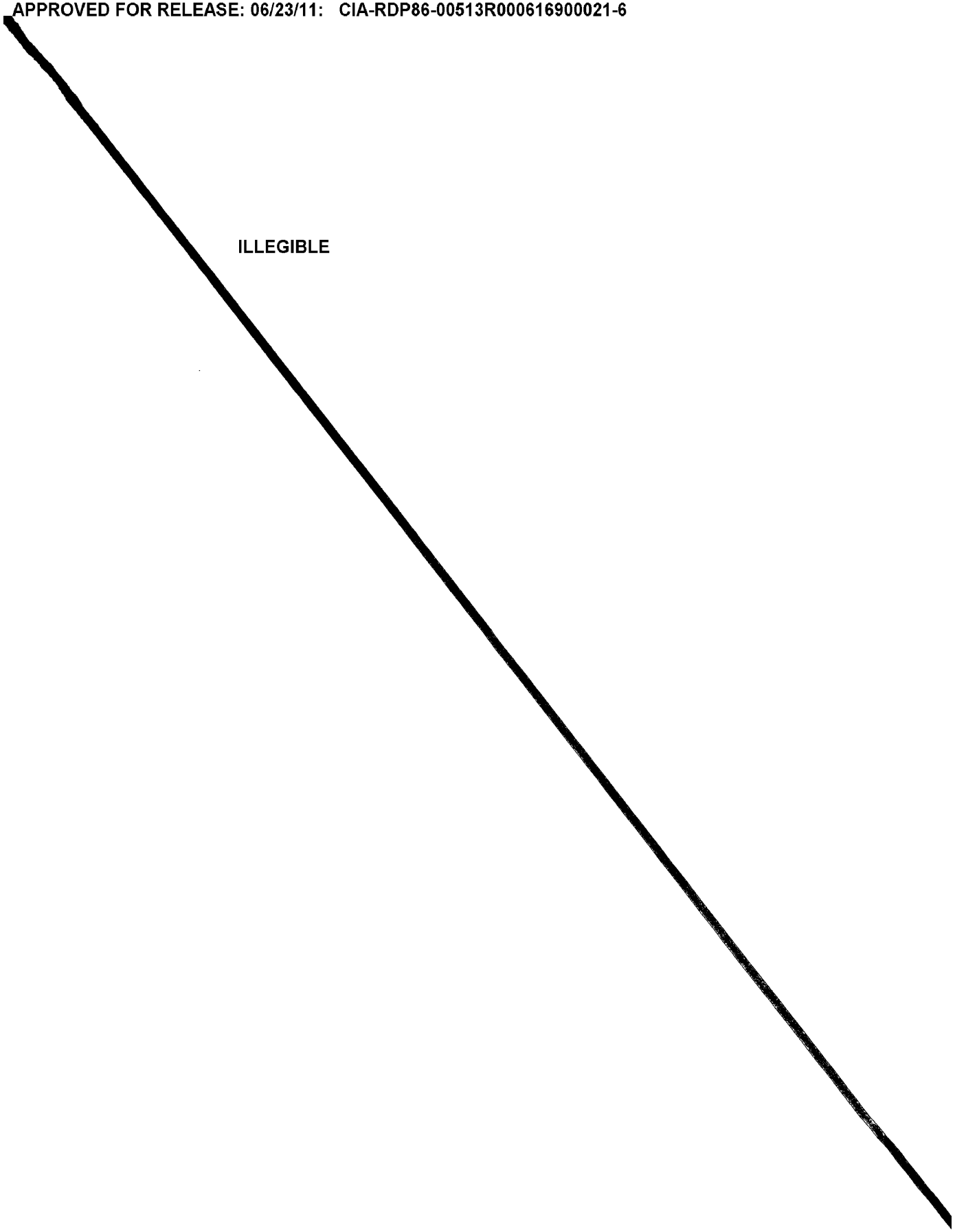
Work of the medical and sanitary unit of the Gomel'Glass Factory in the medical care of workers and in lowering the incidence of disease. Zdrav. Belor. 6 no.6:32-34 Je '60. (MIRA 13:8)
(GOMEL'--GLASS WORKERS--DISEASES AND HYGIENE)

RODE, T.V.; GRISHENKOVA, G.K.; ZACHATSKAYA, A.V.

Interaction of sodium peroxide and sodium superoxide with sodium hydroxide and its hydrates. Zhur. neorg. khim. 5 no.3:529-534 Mr '60. (MIRA 14:6)

(Sodium hydroxide)
(Sodium superoxide)
(Sodium peroxide)

ILLEGIBLE



GRISHENKOVA, A.S.

Using the precipitation reaction in agar for the laboratory diagnosis of swine plague. Dokl. Akad. sel'khoz. 23 no. 6:35-37 '58. (MIRA 11:7)

1. Vsesoyuznyy institut eksperimental'noy veterinarii. Predstavlena akademikom S.N.Muromtsevym.
(SWINE PLAGUE--DIAGNOSIS)

RAGOZINNIKOV, V.A.; GRISHENKOV, Ye.Ye.

Refractories for copper smelting converters. Tsvet. met. 38 no.4:
31-33 Ap '65. (MIRA 18:5)

ORTSYMKOV, A. T., Cand Vet Sci (diss) -- "A study of the distribution of bacterial antigens in the animal organism using tagged atoms". Moscow-Bol'shiki, 1960. 15 pp (All-Union Inst of Experimental Vet Med of the All-Union Order of Lenin Acad Agric Sci im V. I. Lenin), 150 copies (KL, No 15, 1960, 135)

GRISHENKOV, A.I.

Experiments in studying the spreading of swine erysipelas bacteria by means of radioactive tagging. Dokl. Akad. sel'khoz. 24 no.5:13-16 '59. (MIRA 12:7)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut eksperimental'noy veterinarii. Predstavlena akademikom S.N. Muromtsevym.
(Erysipelas) (Radioactive tracers)

GRISHENKOV, A.I.

Studying the distribution of bacterial antigens in the animal organism by using tagged atoms. Dokl. akad. sel'khoz. 23 no.9:39-42 '58.
(MIRA 11:10)

1.Vsesoyuznyy institut eksperimental'noy veterinarii. Predstavlena akademikom S.N. Muromtsevym.
(Antigens and antibodies)
(Radioactive tracers)

S/191/62/000/005/007/012
B110/B101

Welding of fluoroplast films

1.5-2.5 kgf/cm^2. For 100-110 μ thick films at 100°C, a rate of 1-2 m/min was best. Here the tearing strength was 70-75%, and the shear strength ≥ 90% that of the basic material. Two-sided heating permits welding of 95-110 μ thick films without layer at 160-190°C at a rate of 1 m/min, at 250-260°C at a rate of 4-5 m/min. A tearing strength of 65% was obtained. Harder conditions are required for aged ftorlon films. Strengthening of the welding seams, which occurs in the course of aging, is caused by increase of intermolecular interaction owing to decrease of solvent content. 10 days' action of concentrated HNO_3 at 50°C does not change the strength of the basic material and welding seam. Fluoroplasts may be welded although they do not change into the viscous state during heating up to decomposition temperature. Practically all other polymers are welded in the state of plastic deformation. In the viscous state, the mobility of the molecule chain sections increases, diffusion of entire macromolecules is possible and welding takes little time (polyethylene: 2-3 sec). In the highly elastic state, however, only the diffusion on individual molecule chain sections is possible, and this requires longer welding time. There are 11 figures and 5 tables.

Card 3/3

S/191/62/000/005/007/012
B110/B101

Welding of fluoroplast films

at 360-380°C for 3-4 min is required for the welding. 15-5 a are necessary for 200 μ and less for thinner films. Strengths are 0.8-0.9 kgf/cm². When cooled quickly, the welding seam was more transparent than the basic material. This proves a high content of amorphous phase, since the links of the macromolecules cannot crystallize completely during quick cooling. It is characteristic for ftoroplast-4 films that the tear strength of the weld increases with an increase of the amorphous phase. 70-75% of the strength of the basic material was the best tearing strength for 200 μ, and slightly more for 100 and 60 μ. In the light of these results, a stationary welding installation with two superimposed welding heads was developed for the continuous welding of fluoroplast films. Two endless belts carry the material to the cavity heaters 25 cm long and then to the cooling device. Cooling and heating was done under pressure. The maximum heater surface temperature was 380°C, welding seam 5 mm, rate 0.08-0.9 m/min. (2) Investigation of welded polytrifluoro chloro ethylene films showed low strength due to the high crystallization rate of the polymer. (3) Investigation of welded 60-120 μ thick ftorlon films with high degree of crystallization and high density of the amorphous phase showed that, without layer, maximum strength was obtained at 260-300°C and

Card 2/3

S/191/62/000/005/007/012
B110/B101

AUTHORS: Matsyuk, L. N., Kolobkov, Yu. N., Kotovshchikova, O. A., Grishelevich, V. A.

TITLE: Welding of fluoroplast films

PERIODICAL: Plasticheskiye massy, no. 5, 1962, [illegible]

TEXT: Welding investigations were carried out on 200-300 μ thick films of: (1) polytetrafluoro ethylene (ftoroplast-4), (2) polytrifluoro chloro ethylene (ftoroplast-3) and (3) various fluorine containing copolymers (ftorlon). The МСП-1 (MSP-1) and МСП-2 (MSP-2) machines with nichrome bands 0.1 mm thick and 2 mm wide were used. Amperage was 8-15 a, temperature of the heating element 150-400°C, pressure 0.15-2 kgf/cm^2 and the working length of the heating element [illegible] mm. The following data were determined: (1) shear, (2) tear at monoaxial load, (3) strength of the "T" welded joint, (4) specific strength σ and (5) relative elongation. A tensile-testing machine with thermostat was used for this purpose.

(1) Results of the investigation of welded, non-oriented 60,100 and 200 μ thick polytetrafluoro ethylene films (ТУМ 549-56 (TUM 549-56)): Heating

Card 1/3

DUNAYEV, N.I., inzh.; KANTEMIROV, D.D., inzh.; KOCHERGIN, V.N., inzh.; OREKHOV, V.K., inzh.; GRISHEL', Ye.P., inzh.(Belogorsk)

"Traffic organization in railroad transportation" by F.P. Kochnev. Reviewed by N.I.Dunaev and others. Zhel.dor.transp. 41 no.12:91 D '59. (MIRA 13:4)
(Railroads--Traffic) (Kochnev, F.P.)

MIGAL', S.P., kand.ekon.nauk; ABRAMOVA, A.F., kand.ekon.nauk (Dnepropetrovsk); GRISHEL', Ye.P., inzh.; DUMAYEV, N.I., inzh. (stantsiya Kuybyshevka-Vostochnaya)

How to improve the system of economic accountability in classification yards. Zhel.dor.transp. 40 no.4:38-41 Ap '58. (MIRA 13:4)

(Railroads--Accounts, bookkeeping, etc.)

The Effect of Deviation of the Centre Distance on the Load Carrying Capacity of Gear Transmissions with the Novikov Engagement

The question is posed on the advisability of cutting gears to a centre distance slightly larger than the nominal. There are 3 figures, 2 tables and 4 Soviet references.

Card 6/6

The Effect of Deviation of the Centre Distance on the Load Carrying Capacity of Gear Transmissions with the Novikov Engagement

gears and 2.5 times greater than in helical involute gears with a helix angle of 30°. The bending strength of the teeth also increased with a reduced centre distance. At a still further reduced centre distance (0.3 mm), the pitting of a certain part of the convex teeth, mainly in the initial contact zone, i.e. at the tooth tip, was observed. The possible cause of the increased bending strength may be the substantial reduction in the angle between the resultant force and the axis of symmetry of the tooth compared with the involute system. It was also established in these tests that these limited variations of the centre distance had no substantial effect on the power loss torque. It is concluded that Novikov gears are sensitive to the centre distance but can benefit from a limited reduction.

The Effect of Deviations of the Centre Distance on the Load Carrying Capacity of Gear Transmissions with the Novikov Engagement

load capacity. After this, Novikov gears were tested at a centre distance equal to the design value within 10 microns, either way. This yielded the basic fatigue curve for comparisons with both involute gears and Novikov gears when the centre distance was varied. The load capacity, determined by resistance against pitting, is 2.3 times greater in Novikov gears than in straight involute gears and 1.8 times greater than in helical involute gears. The centre distance was then varied by 0.3 and 0.15 mm either way. Higher centre distance deviations were found unacceptable. The results, summarised in Table 1, show a rapid deterioration of the working surfaces of the teeth with an increased centre distance and a relative immunity with a decreased centre distance. Further tests have shown that with the centre distance decreased by 0.15 mm, the load capacity was 3.2 times greater in Novikov gears than in straight involute

The Effect of Deviations of the Centre Distance on the Load Carrying Capacity of Gear Transmissions with the Novikov Engagement

within 60 microns. The gears were heat treated to 270-280 Brinell. The working surfaces were run-in with an abrasive paste before the test at 3% of nominal load and 2 m/sec peripheral speed until full contact was achieved. Running-in followed at 25, 50 and 75% of nominal torque during 1.5 hours each in each direction. Prior to the tests, involute gears of the same steel and dimensions, both straight and helical, without profile correction, were run on the test rig with an exact centre distance. Tests with straight teeth established the limiting contact stress as 25 times the Brinell hardness. The criterion of fatigue failure was the appearance over 30% of the tooth flank surface of fatigue pitting points on at least 80% of all the teeth. The tests were continued to verify the further progress of pitting. After determining the limiting capacity of uncorrected straight teeth, uncorrected helical teeth were tested with a helix angle of 30° and found to have 30% higher

The Effect of Deviations of the Centre Distance on the Load Carrying Capacity of Gear Transmissions with the Novikov Engagement

the sensitivity to changes in centre distance and deformation of components was stated to be high. The Conference did not reach a common point of view. Tests were subsequently run by Professor Kudryavtsev in closed circuit test rigs with facility for centre distance variation. Gears of 40Kh steel with 27 and 53 teeth respectively, a module of 5 mm and a helix angle of 30° were run at 3000 rpm pinion speed. The gears were cut with hobbing cutters having basic profiles as proposed by Professor Kudryavtsev in his Conference paper. The cutting was carried out in two passes on a hobbing machine. The radial eccentricity, measured with a ball, did not exceed 40 microns either way in both the convex and concave teeth. The largest deviation of the axial pitch in the convex teeth was below 20 microns either way and in the concave teeth, 40 microns unilaterally. The variation in the length

 of the common normal of convex and concave teeth was

SOV/122-59-5-3/32

AUTHOR: Grishel', I.N., Docent

TITLE: The Effect of Deviations of the Centre Distance on the Load Carrying Capacity of Gear Transmissions with the Novikov Engagement (Vliyaniye otkloneniy mezhtsentrovogo rasstoyaniya na nagruzochnuyu sposobnost' zubchatykh peredach s zatsepleniyem Novikova)

PERIODICAL: Vestnik mashinostroyeniya, 1959, Nr 5, pp 16-19 (USSR)

ABSTRACT: It is noted that conflicting views have arisen about the sensitivity of the Novikov gear engagement to manufacturing tolerances, especially the centre distance. The late Novikov himself claimed a low sensitivity. His collaborators, R.V.Fedyakin and V.A.Chesnokov (Vestnik mashinostroyeniya, 1956, Nr 4 and 5) suggested that the new gear system has a small sensitivity to centre distance because, within the working range, the tooth profiles do not have an inversion point. Kudryavtsev, V.N., Professor, gave a paper at the All-Union Scientific and Engineering Conference on the Novikov Gear System in 1957, wherein

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GRISHEL', I. N.

25(1) PHASE I BOOK EXPLOITATION SOV/2931

Konferentsiya po voprosam rascheta, konstruirovaniya i issledovaniy zubchatykh peredach i peredach gibkoy svyaz'yu. Odessa, 1957

Raschet, konstruirovaniye i issledovaniye peredach; trudy konferentsii..., vyp. 3 (Design, Construction, and Analysis of Transmissions; Transactions of a Conference on Problems in Design, Construction, and Analysis of Gears and Flexible Transmissions, No. 3) [Odessa] Izd. Odesskogo politekhn. in-ta, 1959. 124 p. 3,000 copies printed.

Sponsoring Agencies: Odesskiy politekhnicheskiy institut, and Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Odesskoye oblastnoye pravleniye.

Ed.: I. P. Nikiforov, Engineer; Editorial Board: L. S. Borovich, Candidate of Technical Sciences; M. S. Belyayev, Engineer; K. I. Zablonskiy, M. D. Genkin, Candidate of Technical Sciences; (Resp. Ed.) Candidate of Technical Sciences; P. S. Zak, Candidate of Technical Sciences, Ya. G. Kist'yan, Candidate of Technical Sciences; V. N. Kudryavtsev, Doctor of Technical Sciences; V. P. Mal'tsev, Candidate of Technical Sciences; M. S. Polotskiy, Candidate of Technical Sciences; and L. B. Erlikh, Candidate of Technical Sciences; Tech. Ed.: A. B. Komissarenko.

PURPOSE: This book is intended for design engineers in the machine-building and automotive industries, particularly gear designers.

COVERAGE: The technical papers contained in this book were originally presented at a conference on gear design held in Odessa in 1957. A number of papers deal with the causes of failure in modern gear drives under such severe service conditions as seizing and jamming. To determine these causes a study was made of the wear resistance of contact surfaces and the rigidity of gear teeth under load. Various gear drives and systems of engagement, including the Novikov-type gears, which are claimed to have many superior characteristics, and the double-enveloping type of worm gear drive are compared. A study is made of the rigidity of gear drives, particularly the rigidity of splined gear-to-shaft joints. A number of gear-testing methods and devices are also listed. No personalities

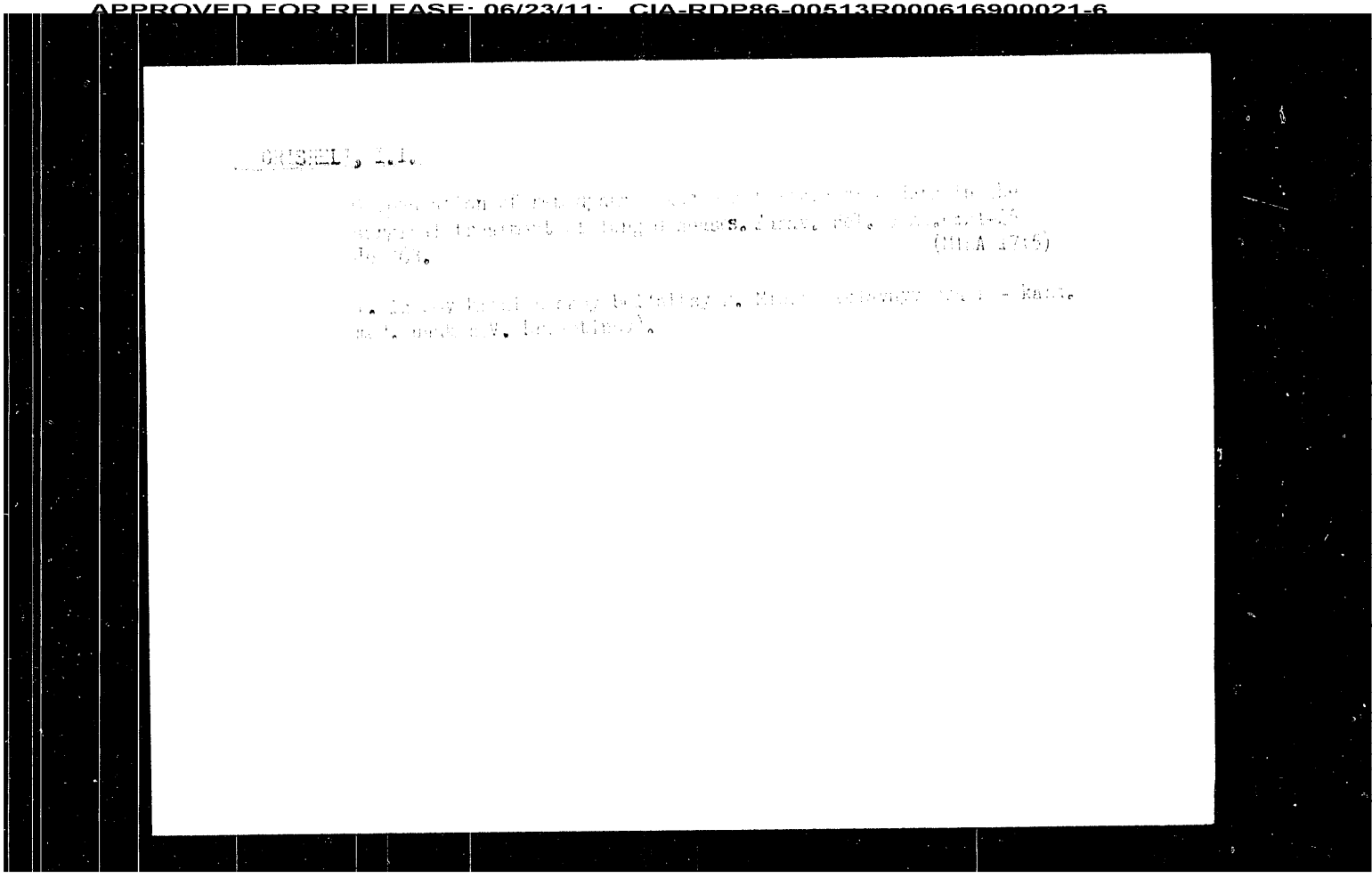
GRISHEL', L.N., dots.; KILIMOV, L.M., inzh.

Using roller analogies and roller stands in studying contact strength of gear wheels. Trudy LVMI no.6:158-166 '57. (MIRA 11:5)
(Gearing--Testing)

GRISHEL', I.I.

Effectiveness of intra-arterial blood transfusion. Zdrav. Bel. 9 no.8:31-34 Ag '63 (MIRA 17:3)

1. Iz 2-y klinicheskoy bol'nitsy Minska (glavnyy vrach - kand. med. nauk B.V. Drivotinov; nauchnyy rukovoditel' - prof. P.N. Maslov).



GRISHEL', I.I.

Phlebotonometry in pulmonary resection. Zdrav. Bel. 7 no. 2:29-31 F '61. (MIRA 14:2)

1. Iz otdeleniya grudnoy khirurgii 2-y klinicheskoy bol'nitsy g. Minska (glavnyy vrach B.V. Drivotinov), nauchnyy rukovoditel' raboty - prof. P.N. Maslov.
(BLOOD PRESSURE) (LUNGS—SURGERY)

GRISHECHKO-KLIMOV, Sergey Mikhaylovich

[Ventilation of livestock and poultry buildings] Ventiliatsiia zhivotnovodcheskikh i ptitsevodcheskikh postroek. Moskva, Stroiizdat, 1965. 77 p.
(MIRA 18:7)

GRISHECHKO-KLIMOV, S. M.

Doc Tech Sci - (diss) "Ventilation of animal husbandry compartments and poultry houses." Moscow, 1961. 48 pp with illustrations; (All-Union Correspondence Polytechnic Inst, Scientific Research Inst of Agricultural Construction of the Ministry of Agriculture RSFSR); 200 copies; price not given; (KL, 6-61 sup, 211)

GRISHECHKO-KLIMOV, S., kand.tekhn.nauk

Using wind power in ventilation systems for livestock buildings. Sbor. nauch. soob. NIIsel'stroia no.2:92-113 '60. (MIRA 15:5)
(Farm buildings--Heating and ventilation)

GRISHECHKO-KLIMOV, S.M., inzh.

Electric heating. Gor. khoz. Mosk. 32 no.10:31-33 O '58. (MIRA 11:11)
(Electric heating)

GRISHECHKO-KLIMOV, S.M.

2688. Grishechko-Klimov, S. M., Calculation of the drying ventilation of windows (in Russian), *Symp. papers Vses. zaoch. politekhn. in-ta* no. 10, 94-97, 1955; *Ref. Zh. Mekh.* 1956, Rev. no. 2947.

A suggestion is made for combatting the condensation of aqueous vapor on the internal surface of external glass by means of the ventilation of the interframe space by the external air.

For this purpose the outer covers should have orifices above and below. Author gives examples of determining the amount of air penetrating into the interframe space, air temperatures in the latter on the surface of the inner and outer glass, as well as the areas of the ventilation holes which require the condensation of vapor on the inner surface of the outer glass to be obviated.

In order to prevent the freezing of the inner glass as the calculations show, it is necessary to increase the air temperature in the interframe space, which in turn leads to a reduction of the required heat exchange in the interframe space.

Courtesy Referativnyi Zhurnal S. D. Krongauz, USSR
Translation, courtesy Ministry of Supply, England

2

Beam directivity was $\simeq 4°$ in both the vertical and horizontal planes, which indicates that the width of the generation region is at least 70 μ. The authors thank A. V. Babushkina, Yu. N. Korolev, and L. M. Novak for assistance in the work. Orig. art. has: 2 figures. [26]

SUB CODE: 20/ SUBM DATE: 18Feb66/ ORIG REF: 001/ OTH REF: 002 / ATD PRESS: 5083

L 45568-66
ACC NR: AP6026720

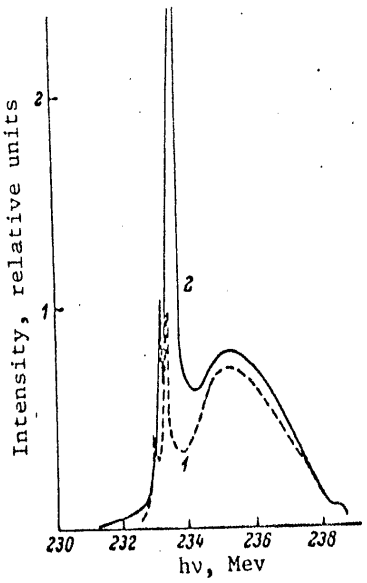


Figure 1. Radiation spectrum of an InSb laser at H_z = 4.5 koe, and T = 4.2K
I, a: 1 — 15, 2 — 18

Card 2/3

L 45568-66 EWT(1)/EWT(m)/EEC(k)-2/EWP(k)/T/EWP(t)/ETI IJP(c) AT/WG/JD
ACC NR: AP6026720 SOURCE CODE:: UR/0181/66/008/008/2496/2497

102993

AUTHOR: Shotov, A. P.; Grishechkina, S. P.; Muminov, R.A.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR, Moscow (Fizicheskiy institut AN SSSR)

TITLE: Generation of coherent radiation in an indium antimonide electron-hole plasma

SOURCE: Fizika tverdogo tela, v. 8, no. 8, 1966, 2496-2497

TOPIC TAGS: solid state laser, electron ~~hole~~ plasma, indium antimonide, semiconductor laser

ABSTRACT: The authors present new data on an InSb semiconductor laser operating at 4.2K, which with respect to some parameters (generation at relatively weak magnetic fields of $\sim$4 koe, relatively large pulse durations up to 10 μsec, low threshold currents, and operations which are close to the single mode) is superior to InSb lasers described in the literature. The laser was prepared from p-type, high-purity InSb (concentration $p \simeq 2 \cdot 10^{13}$ cm^{-3}, $\simeq$ 6000 cm^2/v. sec at 77K). It is shown (Fig. 1) that the threshold generation current (I_{thr}) with an increase in the magnetic field (H_z) first decreases sharply, then rises slightly. The laser operated satisfactorily when the pulse duration was increased to 10 μsec with a repetition frequency of $\sim 10^3$ cps.

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L 32722-66

ACC NR: AP6020207

by a reduction in the slope of the volt-ampere characteristic and by a shift of the peak of the emission spectrum with increasing current density and decreasing magnetic field (at a current of ~10 amp or ~5 x 10^3 amp/cm^2). The spectrometric method is apparently more sensitive to the pinch effect than the electric conductivity method. The emission spectra also make it possible to determine the degree of degeneracy of the plasma and the diameter of the pinch (~10^{-2} cm and decreasing with increasing current). The authors thank B. M. Vul and V. A. Chuyenkov for a discussion of the results and A. V. Babushkin and L. M. Novak for help with the work. Orig. art. has: 3 figures and 8 formulas. [02]

SUB CODE: 20/ SUBM DATE: 28Jan66/ ORIG REF: 003/ OTH REF: 004/ ATD PRESS: 5125

Card 2/2 JS

L 32722-66 EWT(1)/ETC(f) IJP(c) AT
ACC NR: AT6020207 SOURCE CODE: UR0056/66/050/006/1525/1528

AUTHOR: Shotov, A. P.; Grishechkina, S. P.; Muminov, R. A.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Pinch effect in a degenerate plasma of indium antimonide

SOURCE: Zh eksper i teor fiz, v. 50, no. 6, 1966, 1525-1528

TOPIC TAGS: indium compound, antimonide, semiconductor plasma, plasma pinch, magnetic pinch, recombination radiation, volt ampere characteristic

ABSTRACT: Unlike in earlier experiments, where the pinch effect was produced in a nondegenerate semiconductor plasma, the authors were able, by injecting carriers into indium antimonide through contacts, to obtain at large current densities (~10^4 a/cm^2) and helium temperatures (4.2K) a high degree of degeneracy in an electron-hole plasma and a pronounced pinch effect. The degeneracy of the plasma was confirmed by the coherent emission of the crystal and by its recombination spectrum. The pinch effect was observed and investigated by two independent methods - measurement of the electric conductivity of the plasma (volt-ampere characteristic) and by measurement of the spectra of recombination radiation of the electron-hole pairs, using a method described by the authors earlier (FTT v. 8, 1083, 1966). The investigations were made on relatively pure p-type InSb single crystals. Carrier injection was in short pulses (~1 μsec) repeated at ~100 cps. The presence of the pinch effect was manifested

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Temperature dependence of the tunnel ...

suitable choice of impurity diffusion, by the change of temperature and (or) the duration of the melting process, or also by the change of impurity concentration in the initial germanium. A further study will be aimed at finding more data on the state of the energy band edge in a degenerate semiconductor. There are 6 figures and 1 table. The most important English-language reference is: L. Esaki, Phys. Rev., 109, 601, 1958.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR, Moskva
(Physics Institute imeni P. N. Lebedev AS USSR, Moscow)

SUBMITTED: January 18, 1962

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Temperature dependence of the tunnel ...

$$\frac{dy}{ydT} \simeq -\frac{1}{\frac{2}{3}T\left|\frac{\sqrt{\pi}}{2}\left(\frac{h^2}{2\pi mkT}\right)^{3/2}N_{min}-1\right|}. \qquad (12)$$

of electron distribution near the Fermi energy. I denotes the tunnel current strength, z the tunnel effect probability, y the electron energy, N and P the concentrations of ionized donor and acceptor impurities, K the dielectric constant of the semiconductor. Moreover,

$$C=\left(\frac{K}{2\pi e}\right)^{1/2}\frac{\pi m^{*1/2}e^{3/2}}{4ch}, \qquad (6).$$

The increase of the tunnel effect probability with a rise of temperature causes a higher current strength, while the temperature-dependent blurredness of electron distribution weakens it. These two opposite effects are of the same order of magnitude, and may compensate each other in a certain temperature range. The temperature-dependent blurredness is prevalent on a decrease of impurity concentration in the p-n junction. The temperature coefficient of the tunnel current can be controlled by the

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24700

AUTHORS: Shotov, A. P., and Grishechkina, S. P.

TITLE: Temperature dependence of the tunnel current in thin p-n junctions

PERIODICAL: Fizika tverdogo tela, v. 4, no. 6, 1962, 1474-1481

TEXT: The temperature dependence of the tunnel current strength in p-n junctions with impurity concentrations of more than $5 \cdot 10^{18}$ cm^{-3} has been examined in the range from 77 to 370°K (conditions corresponding to electron gas degeneracy). To fabricate the p-n junctions, indium with gallium addition was fused into n-type germanium single crystals containing arsenic impurities at 300° and 450°C, or indium with arsenic addition was fused into p-type germanium single crystals containing gallium impurities at 400°, 450°, and 500°C. The temperature dependence $dI/dT = dz/zdT + dy/ydT$ is composed of the temperature dependence $dz/zdT \simeq C\Theta((1/N)+(1/P))^{1/2}$ (5), of the tunnel effect probability, and the temperature-dependent blurredness

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Temperature dependence of ...

($3.4 \cdot 10^{19}$ cm^{-3}) likewise display a decrease of current with a rise of temperature. p-n junctions in germanium with arsenic impurity showed a growing current with rising temperature, even at relatively low impurity concentrations ($5 \cdot 10^{18}$ cm^{-3}). This shows that the regularities observed depend not only on concentration but also on the type of impurities. L. V. Keldysh is finally thanked for discussions, V. S. Zemskiy and G. P. Proshko as well as T. S. Kamenskaya for having prepared the specimens. There are 3 figures and 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Fizicheskiy institut im. Lebedeva Moskva (Institute of Physics imeni Lebedev, Moscow)

SUBMITTED: August 9, 1960

S/181/61/003/002/050/050
B102/B201

rising temperature, while in the other case it increases. This is particularly evident in the maximum. The amount of the tunnel current is determined by the number of electrons reaching the potential barrier per unit time and by the probability of barrier penetrability. The temperature thus has an effect upon these two factors. With a rise of temperature the degeneracy is reduced and the Fermi level drops; (cf. Fig. 1). The voltage corresponding to the maximum of curve I(U) decreases with rising temperature, which fact is indicative of a shift of the Fermi level into a part of the p-n junction with lower impurity concentration. In this connection, the thermal excitation of electrons leads to a blurredness of the Fermi surface and to a reduction of the number of electrons passing through the potential barrier. Thus, the current is reduced with rising temperature in this case. On specimens with smaller n this effect cannot be of major importance. Other effects arise which at large concentrations are concealed by the former. The probability for the tunnel effect on a temperature change is implicitly dependent upon the crystal parameters (on the forbidden-band width and the effective mass). Since the forbidden-band width decreases with a rise of temperature, the tunnel current is bound to grow. The p-n junctions prepared from p-type germanium with gallium impurities

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AUTHORS: Vul, B. M., Shotov, A. P., and Grishechkina, S. P.

TITLE: Temperature dependence of the tunnel current in p-n junctions

PERIODICAL: Fizika tverdogo tela, v. 3, no. 2, 1961, 667-670

TEXT: In their studies of the tunnel current, the authors also examined the temperature dependence of the volt-ampere characteristics of p-n junctions in highly doped germanium, and report on the results obtained. The p-n junctions were prepared by fusing indium with gallium addition and n-type germanium, as well as indium with phosphorus addition and p-type germanium. The current flowing in the straight direction displayed in all cases a maximum and there always appeared a region of negative resistance. Figs. 1 and 2 show the volt-ampere characteristics of two p-n junctions of arsenic-doped germanium; the two specimens had different electron concentrations: $n = 4 \cdot 10^{19}$ cm^{-3} and $n = 1 \cdot 10^{19}$ cm^{-3}. As may be seen from the characteristics, the temperature-dependent change of the tunnel current is precisely the opposite in the two cases: in the former case, the current decreases with

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voltage characteristics and peak current vs. temperature curves are presented. "The authors are thankful to B. M. Vul and L. V. Keldy*sh for discussing the problem, to G. P. Proshko for lending his Ge crystals, and to T. S. Kamenskaya for her assistance in preparing p-n junctions." Orig. art. has: 3 figures and 8 formulas.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 15May63 ENCL: 00

SUB CODE: PH NO REF SOV: 003 OTHER: 002

Card 2/2

L 12829-63 EWT(1)/EWG(k)/EWP(q)/EWT(m)/BDS/EEC(b)-2 AFFTC/ASD/ESD-3
Pz-4 JD/AT/IJP(C)
ACCESSION NR: AT3003025 S/2927/62/000/000/0310/0315

AUTHOR: Shotov, A. P.; Grishechkina, S. P.

TITLE: Effect of temperature on the tunnel current in thin p-n junctions [Report at the All-Union Conference on Semiconductor Devices, Tashkent, 2-7 Oct., 1961]

SOURCE: Elektronno-dy*rochny*ye perekhody* v poluprovodnikakh. Tashkent, Izd-vo AN UzSSR, 1962, 310-315

TOPIC TAGS: tunnel current

ABSTRACT: Experimental studies are reported of various methods of preparing p-n junctions that meet specified tunnel current-temperature relations. It was found that the above relations can be readily controlled by varying the temperature and duration of the alloying process or the impurity concentration in the source Ge. Single crystals of Ge containing As or Sb (n-type) or containing Ga (p-type) were used as source material. The impurity concentration was over 5 x 10^{18} cm^{-3} ensuring the electron-gas degeneration. The p-n junctions were prepared by alloying In + Ga (into n-Ge) and In + As (into p-Ge). In all p-n junctions the forward tunnel current exhibited a maximum; a negative-resistance region was observed. Current-

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spectrum to direct radiative interband recombination of the electron-hole pairs. The authors have also observed other spectra with maxima corresponding to lower energy (234 Mev) and to a larger spectral width. These probably pertain to compensated p-type samples in which the edge of the energy band is distorted by impurity states. Such crystals are now under study. The authors thank B. M. Vul for a discussion of the results, and A. V. Babushkin, Yu. N. Korolev, and L. M. Novak for help with the work. Orig. art. has: 7 figures and 2 formulas. [02]

SUB CODE: 20/ SUBM DATE: 16Aug65/ ORIG REF: 003/ OTH REF: 011/ ATD PRESS: 4260

Card 2/2 BLG

L 27549-66 EWT(1)/EWT(m)/ETC(f)/EPF(n)-2/EWG(m)/EWP(t)/ETI IJP(c) JD/AT

ACC NR: AP6012465 SOURCE CODE: UR/0181/66/008/004/1083/1087

AUTHOR: Shotov, A. P.; Grishechkina, S. P. Kopylovskiy, B. D.; Muminov, R. A.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR, Moscow (Fizicheskiy institute AN SSSR)

TITLE: Spontaneous and coherent emission of electron-hole plasma of indium antimonide

SOURCE: Fizika tverdogo tela, v. 8, no. 4, 1966, 1083-1087

TOPIC TAGS: indium antimonide, semiconductor laser, recombination radiation, forbidden band, electron recombination

ABSTRACT: The authors investigate the spontaneous and stimulated recombination radiation from an electron-hole plasma in InSb in magnetic fields up to 15,000 G. Coherent radiation was achieved in a field of 14,000 G and at injection currents ~2 x 10^4 a/cm^2 at 0.4 μsec pulse duration effected at two levels corresponding to the two different values of the electron spin of the first Landau level when split by the magnetic field. The plasma was produced in relatively pure p-type InSb by injection through rectifying contacts. The volt-ampere characteristics in the forward direction disclose a negative-resistance section due to modulation of the conductivity within the crystal by double injection of electrons and holes from the two contacts. The spontaneous-emission spectrum taken at 10K and at a current of 5a, obtained in response to 0.4 μsec pulses at a repetition rate of 85 pps, exhibited a maximum at 235.5 Mev, which is in good agreement with the width of the forbidden band at this temperature. This relates the

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ACC NR: AP7006128

field dependence of the plasma radiation intensity, the volt-ampere characteristics of the plasma, the differences in the behavior of the plasma in longitudinal and transverse fields, and the results of the earlier investigation it is deduced that under quasistationary conditions a longitudinal magnetic field increases the diameter of the plasma pinch, and a transverse field shifts the pinch towards the crystal surface. In strong fields, a transverse field causes disintegration of the pinch by heating the carriers. Approximate values are obtained for the plasma pinch radius, the carrier density, the drift velocity, and the carrier mobilities. The possible effects of external magnetic fields on the design of semiconductor lasers are briefly discussed. The authors thank B. M. Vul for interest in the work and remarks, and A. V. Babushkin for help in the work. Orig. art. has: 5 figures and 10 formulas.

[02]

SUB CODE: 20/ SUBM DATE: 05Aug66/ ORIG REF: 008/ OTH REF: 003

ATD PRESS: 5116

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